



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,113	04/08/2004	Kaoru Higuchi	1248-0714PUS1	8367

2292 7590 01/27/2006

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

LAMB, BRENDA A

ART UNIT	PAPER NUMBER
----------	--------------

1734

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

Application No.

10/820,113

Applicant(s)	
--------------	--

HIGUCHI ET AL.

**Examiner**

**Brenda A. Lamb**

**Art Unit**

1734

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 4/08/04, 3/21/05 and 10/31/05.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) 6-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/08/04 & 3/21/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

Applicant's election with traverse of Group I in the reply filed on 10/31/2005 is acknowledged. The traversal is on the ground(s) that no serious burden to examine the additional group of claims. This is not found persuasive because the examiner maintains that product as claimed can be made by another and materially different process such as one wherein the combining layer is coated and hardened on the substrate which includes a concave section and thereafter a top plate is extruded onto the above cited substrate with hardened combining layer thereon thereby combining the top plate within the substrate coated with a hardened combining layer thereon so to form a product having a substrate including a concave section, combining layer and top plate.

The requirement is still deemed proper and is therefore made FINAL.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The originally filed specification is not enabling as to what the relative roughness encompasses that is what the roughness of the surfaces of the top plate and substrate of the pattern formation apparatus is relative to (another surface?) in order to achieve the claimed relative roughness of 0.1.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al.

Ishida et al teaches the design of a pattern formation apparatus comprised of the following elements: a substrate including a concave section; a top plate that is combined with a surface of the substrate where the concave section is provided; a combining layer, provided on at least one of the substrate and the top plate, via which the substrate and the top plate are combined with each other; and nozzles defined by the substrate and top plate which has been defined by the combining layer. The process step of combining the substrate and the top plate by melting the combining layer serve of no patentable moment in a product claim since in a product-by-process it is the patentability of the product claimed and not of the process steps which must be established. Therefore, Ishida et al has a pattern formation apparatus within the scope of claim 1 (In re Thorpe 227 USPQ 964). With respect to claim 2, Ishida et al teaches the combining layer of the pattern formation apparatus is made mainly of metal or silicon dioxide (see column 4 lines 29-31). With respect to claim 3, Ishida et al teaches that at least one of the substrate and the top plate is made mainly of material within the scope of the claim (see column 3 line 60 to column 4 line 31).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al in view of Takatori et al.

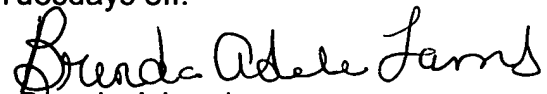
Ishida et al is applied for the reasons noted above. Ishida et al fails to teach the the substrate and the top plate include surfaces to be combined with each other whose relative roughness is not more than 0.1 um. However, Takatori teaches the maximum surface roughness of the surfaces which form the orifice of the ink jet printer is 0.1 or less as disclosed in order to achieve very good image quality. Therefore, it would have been obvious to provide the substrate and top plate which define the peripheral surfaces of the orifices of the Ishida et al pattern formation apparatus with a roughness within the scope of the claim since Takatori teaches in a pattern formation apparatus such as Ishida et al providing the surfaces which define the orifices with a roughness of 0.1 in order maximize image quality (see Example 1).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al in view of Okuda et al.

Ishida et al is applied for the reasons noted above. Ishida et al teaches each of the nozzles has an opening section from which the ink is jetted out but fails to teach the opening section has an area within the scope of the claim. However, it would have been obvious to optimize the opening area of nozzles of the Ishida et al pattern formation apparatus such that it is within the scope of the claim since Okuda et al teaches a pattern formation apparatus wherein the opening area is within the scope of the claim for the taught advantage of optimizing size of the nozzle to optimize re-filling of the pattern formation apparatus (see column 8 lines 24-26).

Art Unit: 1734

Any inquiry concerning this communication should be directed to Brenda A. Lamb at telephone number (571) 272-1231. The examiner can normally be reached on Monday and Wednesday thru Friday with alternate Tuesdays off.

A handwritten signature in black ink that reads "Brenda A. Lamb". The signature is written in a cursive, flowing style.

Brenda A Lamb  
Examiner  
Art Unit 1734